**AP Statistics- Core Assessment 2B practice**

**Show all of your work. Clearly indicate the methods that you have used. You will be graded on the correctness of your methods, the accuracy of your results, and the quality of your explanations.**

A precinct wants to test whether its training program for drug-sniffing dogs has worked. 20 dogs have just completed the training program. The precinct puts 8 identical bags in a room, each at equal distance from the door. One of the bags has drugs in it. They release each dog into the room 50 times, and record whether the dog finds the drugs or not. Between each trial, the officer randomly selects which bag the drugs will be in. Below are the results for the number of times each dog found the drugs:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Dog** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** |
| **# of times** | Before | 10 | 12 | 13 | 6 | 5 | 8 | 6 | 8 | 9 | 15 | 8 | 5 | 13 | 10 | 9 | 7 | 8 | 6 | 14 | 12 |
| **drugs** | training |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **found** | After | 20 | 18 | 19 | 8 | 4 | 9 | 12 | 17 | 10 | 13 | 20 | 9 | 11 | 18 | 7 | 17 | 21 | 3 | 10 | 15 |
|  | training |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Does the data provide evidence that training is effective in improving a dog’s ability to sniff out the drugs? Choose an appropriate test, state and verify the necessary assumptions, state appropriate hypotheses, and carry out the test. Make sure you state your conclusion in the context of the problem.